- **Publications 1912-1939**

On the Occurrence of Methyl Guanidine in the Urine of Parathyroidectomized Animals, 1912

Chemical Consequences of the Removal of the Parathyroid Glands, 1913

Toxic Bases in the Urine of Parathyroidectomized Dogs, 1913

The Physiology of the Parathyroid Glands, 1916

Tetany and the Parathyroid Glands, 1918

A New and Successful Diagnosis and Treatment of Cancer, 1920

CANCER Its Function and Cure, The Evolution of the Immunity Process, 1925

The Prevention of CANCER, 1926

Cancer Supplementary Points, 1926

The Koch Cancer Treatment and its Investigation , 1927

Blood Chemistry in Malignancy

The Function of Cancer

Journal of the American College or Proctology

Pathogenesis and Immunity as Conveyed

Natural Immunity via Aerobic Glycolysis, 1938

- **Publications 1940-1949**
- **Publications 1950-1967**

THE PREVENTION OF CANCER

INTRODUCTION

The fact that both the incidence of cancer and the mortality from this disease is on the increase should awaken every one to the importance of seeking measures for the prevention of this dreaded scourge of the human race. Each year, hundreds of thousands die of cancer and in our country alone there are, perhaps, a million sufferers. In the light of recent researches, which reveal its insidious development, we might conclude that other millions are suffering from cancer in its formative stages without suspecting the identity of their trouble. They are not aware of the misery that may be ahead of them nor of the fact that clinical and laboratory observations of the past ten years point to the conclusion that the prevention of cancer lies in the following of certain simple definite health measures.

Only a decade ago cancer was preeminently a disease of the aged and of those past middle life. Even today statistics show that one out of every 10 who reaches the age of 40 dies of this disease. It is occasionally met with in youth, is quite frequent in the twenties and common in the thirties. The statistical studies of Hoffman and Schereschewsky show that mortality from cancer has increased in the last 20 years about 30 percent. The disease is on the increase in spite of the most drastic and sometimes cruel measures of attack that have been applied to control it in the afflicted. Surgery, X-ray, and radium have failed to stem its tide. Many of those who submitted to these measures for early relief have died quicker or have apparently suffered more than they would have done if they had been left alone. The steady increase in the death rate-from cancer demonstrates that such measures as are now usually directed against the local manifestation (the growth or ulcer) really have no valid place in the prevention or cure of cancer.

To deal with this problem it is necessary to first remove from the mind any delusion that cancer can be cured by being burned or cut out. On the other hand, it is now a fact, practically demonstrable, that the essential conditions to the development of the disease can be prevented from existing in the blood, that the prevention of this disease is a matter of hygiene (chiefly personal) and its real cure, a matter of constitutional treatment.

MEDICAL AUTHORITY AND FOLLY

In the serious matter of the practice of medicine, the conscientious physician naturally desires to be backed up in all he does by authoritative guidance. In this country he has been led to rely on the propaganda of the American Medical Association and its constituent bodies. He looks to the Journal of the American Medical Association for the published expression of accepted propaganda or the denouncement of what has been judged "unfit." Were the men who have filled and are filling the positions on the editorial staff, especially of editor in chief, of this great journal, men of great scientific vision like Paget or Sambon, men trained as bacteriologists, as epidemiologists or as physiological chemists, the attitude today concerning, the cancer problem in America might be very different. Unfortunately the men who have been at the helm are great organizers, not great scientists, nor even clinicians of great attainment through years of conscientious private practice. It would seem their chief energy has been directed to the building of a great organization for more energy and money appears to be spent by "orthodox" medicine in the effort to secure legislation against the inroads made on its domain by the cults, than is spent in the honest search for the truth about cancer-its real cause, prevention and cure.

The long adherence of medicine to the theories of the pathologists and to destructive methods in the treatment of cancer will soon be recognized as the greatest medical folly of the century. Had this policy resulted in the cure of the afflicted, or even of a large percentage of them such a procedure alight have been justified. But failure is now generally recognized by both the laity and the medical profession and utter ignorance of the cause and cure of cancer was acknowledged at the last convention of the American Medical Association held in Atlantic City in May, 1925. In the heat of argument, X-ray, radium and surgery emerged as inefficient as cures. No practical ideas for the prevention of the disease were stressed.

In spite of this chaotic condition in America the American Association for the Control of Cancer, which has the endorsement of both the American Medical Association and the United States Public Health Service, each year stampedes this country with a campaign of education (the distribution of leaflets, the giving of lectures and radio talks to laymen by physicians, chiefly surgeons, and radiologists), the effect of which is to lead people to resort to inefficient if not often destructive methods. In the light of facts discovered within the last 10 years by private investigators, now checked up by others and proved by clinical experience over a period of years, the possibility of the control of cancer by the destructive methods, which have been, not only approved, but practiced by the leading lights of clinical medicine, can exist only in the imagination of the uninformed.

PREVENTION VERSUS CONTROL

Cancer is a constitutional disease of germ origin and like diphtheria has its local manifestations. Like diphtheria, its prevention and cure are matters of constitutional therapy. When the germ of diphtheria was discovered, we were prepared to successfully fight the disease. Today we are in possession of facts that should enable us to be even better prepared for the fight against cancer for we already know more about it than we do about diphtheria. Not only has a germ been isolated, its life cycle traced, its intermediate host scented and its method of attack studied, but the possibility of its being present in the system long before the development of a tumor or ulcer has been demonstrated. The preconditions essential for the existence of the germ in the body have been recognized by prominent men like Ehrlich, Shaw Mackenzie, Lane, Glover, Gye and Koch (Wm. F.). The latter has isolated the poison this germ creates and has produced a synthetic substance which acts as a converter of this toxin into antitoxin.

In short, the factors that determine why one person contracts cancer and why another does not, are now fairly well enough understood and sufficiently proven to serve us effectively in the prevention of cancer. To be sure, these discoveries are recent, (mostly within the last ten years). But were it not for the extreme conservatism, the necessary caution and overconfidence in the infallibility of doctrines accepted by the medical profession, the world at large might have been benefited by this knowledge ere this. The problem is not one of control but of prevention.

BEACON BEARERS

The history of medicine is full of incidences where a discovery of great import to the public health was not adopted until years and years had been wasted in controversy, false investigation, slander, bickering, and suppression. In some instances, not until the old standpatters had died off was the way clear for the new discovery to be recognized. Among the men who thus suffered martyrdom but whose names now stand in the limelight as pillars in the real progress of medicine are Harvey, Jenner, Holmes, S Semmelweis, Pasteur, Lister, Koch (Robert) of the past century. Among those of the 20th century, some of whom are today objects of persecution by, orthodox medicine, but whose names will stand out in the future as great benefactors of mankind, are those of Smith (Irwin F.), Fibiger, Borrel, Blumenthal, Sambon, Glover, Young, Gye, Barnard, and Koch (Wm. F.) for their observations and contributions on the etiology, prevention and cure of cancer.

The accomplishments of these men are such that the medical profession can no longer turn a deaf ear to their testimony with the assertion that they are either

charlatans or honesty mistaken. They are the ones who have made the observations, who have done the work in the laboratories, who have time and again checked up on their work and who have reached conclusions based on incontrovertible, observable facts that can be and have been duplicated by others. Already the work of Glover has been duplicated by Louden, McCormack, and Scott. It is not an accident that the observations of a number of others dovetail into those made by Glover and Young. Nor can we turn lightly aside the observations and the prophecies of Sambon, the greatest of English epidemiologists, in the light of his past achievements and prophecies relative to the intermediate host of such diseases as malaria, typhus fever, Rocky Mountain fever and sleeping sickness.

Ehrlich paved the way for chemotherapy in the treatment of cancer. William F. Koch has undertaken the study of cancer as a phenomenon of physiology, of biochemistry. He has worked out some of the chemical problems of cancer not undertaken by any one else-the isolation and synthetic production of the toxin of cancer, the chemical function of the cancer tumor and, lastly, and most important of all, the production of a synthetic chemical which acts as a converter in the changing of the toxins of cancer into antitoxins and thus by reinforcement of the natural processes, when injected into a sufferer of the dread disease, has brought about a cure in a percentage of the cases treated.

Koch's first contribution to science was one of physiological chemistry, the discovery of the function of the parathyroid glands, four little glands present in the neck of all the higher animals. Koch noted that, when these glands are removed or seriously injured by disease, the animal dies from a definite set of convulsions. He found that certain poisons, the guanidin bases, were responsible for the convulsions and the death of these animals, but that so long as the parathyroid glands were present and active, they kept the animal immune to the guanidin poisons. This work was later completely confirmed by Paton and his staff of the University of Glasgow, and for this work which involved four years of intensive study Paton was awarded the world's Triennial Prize in Medicine from Harvard University. Had it not been for Koch's early researches concerning the function of the parathyroid glands, he might never have been led to isolate the toxin of cancer, to inject it into animals, and to grasp the real significance of his observations and their bearing on the solution of the cancer problem.

At the request of the Committee on Organization of the Anti-Cancer Federation of America, Dr. Koch has prepared the following article on the "Prevention of Cancer."

ORLANDO DUCKER, M. D.
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THE CAUSES AND PREVENTION OF CANCER
By WILLIAM F. KOCH, M. D., PH. D.

The germ that causes cancer was first discovered and its life history traced by Glover of Toronto, and by Young, of Edinburgh, working independently, at about the same time. Their first announcement was made in 1920. Years before this Doyan, of Paris, and Clark, of London, had discovered a phase of the life cycle of this germ. More recently, Blumenthal of Germany and Gye and Barnard of London have isolated and proven a phase of this germ to be the cause of cancer. But the studies of Glover and Young are the most complete and their work within the last year has been confirmed by Scott of Butte, Montana, and by Louden and McCormack, of Toronto. They have found that the germ exists in every specimen of cancer tissue, that it can be grown in artificial culture media, and that it can be transplanted from one culture to another many times and still be able to cause cancer when inoculated into susceptible animals or humans.

Sambon has noted that cancer is an endemic disease that is becoming pandemic. There are cancer houses, cancer streets, cancer valleys and there are places where cancer is unknown. It was Sambon who connected the transmission of diseases like malaria, typhus fever, Rocky Mountain fever and sleeping sickness through an intermediary host such as a mosquito, a louse, a tick or a fly. And he has made the observation that while cancer infected areas swarm with cockroaches, mice, and rats, these pests are not found in a district of Iceland where cancer is unknown. Fibiger has shown that there must be some relationship between the nematode of cockroaches and the cancer of mice and rats which eat

the cockroaches.

Glover finds that the cancer germ exists in several different phases: a bacillus, a coccus or spore form and a filterable form. The spore is very resistant to destruction by boiling or by usual antiseptics. For this reason it exists wide spread in nature and we are all more or less exposed to it. The prevention of cancer, therefore, depends not so much on the successful avoidance of the germ as upon maintaining such conditions, as prevent the germ from existing or developing in our bodies. A number of investigators have demonstrated that the germ can not produce cancer in normal tissues.

CONTRIBUTING CAUSES

There are three circumstances that determine the production of cancer. They are:

First. Unbalanced nutrition, whereby the various tissues of the body become overloaded with incompletely assimilated food products. These in turn serve as material for the support of germ growth, and for the production of poisons. They also blunt the body chemistry, cutting down its efficiency, and hampering the immunity process.

Second. Impaired activity of the digestive organs, productive of constipation, whereby the cancer germs can accumulate, multiply rapidly and produce their poison in large quantity in the large intestine from which both the poison and the germ are absorbed and carried by the blood throughout the body

Third. An injury to some part of the body, whereby the circulation is impaired and the oxidation processes in the injured tissues diminished. The area of congestion, or stasis, thus produced is a favorable one for the germ to locate and produce the poison which acting upon the injured cells converts them into cancer cells.

The cancer cells once formed lead an unrestrained existence and multiplying rapidly produce growths that spread throughout the body causing death in several indirect ways.

THE CANCER TOXIN

Since the poison or toxin produced by the cancer germ is the active substance causing cancer, some of its properties will be considered that we may better understand what cancer is. In my study of the development of the parathyroid glands in the embryo, I observed that this embryonic tissue resembled cancer tissue in its microscopic characteristics, and the thought came to me that perhaps cancer might represent a developmental stage of a new protective gland still undergoing evolution toward perfection. If such was the case, I argued that there must be a poison at the base of the disease and determined if possible to find it and study its effects on the body. Having succeeded in isolating this toxin and in synthetically preparing a quantity for experimental purposes, I injected it into rats. These animals after being injected with the cancer toxin showed disturbances of the more delicate mechanisms of the nervous system. They would go blind and bump into the sides of their cages, or they would lose their sense of equilibrium and turn their heads into peculiar positions or even spin about on their hind legs or move about in a circle. Having observed that the cancer producing poison so markedly affected the optic and equilibrium mechanisms of the brain of the animals, cancer patients were studied to note if they gave any evidence of this type of poisoning. Upon carefully studying the disease in a large number of cancer cases, it was found that not only were minor or very grave interferences with nerve action dominantly present, but that after the cancer growth developed, relief to a variable degree from these symptoms was obtained, and thus the protective action of the growth against the toxin 'was clearly demonstrated. A description of the symptoms that, so often precede the development of the cancer growth was given in a paper on "Cancer" read before the American Association for the Prevention and Cure of Cancer in June 1924, and published in Cancer, Oct. 1924.

Clinical history discloses the persistence of toxemia over a period, in some cases as long as twenty years, previous to the advent of the growth. After the growth has come these toxic manifestations disappear completely or nearly so. After a surgical removal of the growth they return; and with recurrence of the growth

again disappear. We designate these symptoms as the pregrowth symptoms, for they differ from those consequent to the activity of the growth itself.

The pregrowth symptoms caused by the toxin stimulus are mainly manifestations of interference with normal nerve function, and predominately with certain mechanisms of the central nervous system. Thus in a series of two hundred cases distinct mental aberration, incorrectly diagnosed as paranoia, was observed in two percent of the cases. But the prevailing disturbance is an interference with function of the second and third cranial nerve mechanism. Thus an optic migraine without much or any headache or aural disturbance, or an optic vertigo with scotomata, might express the condition. The main characteristics, as they occur in fully eighty percent of my cases are as follows:

The points of disturbance lay both in the perception centers for optic impulses and those centers where optic impulses are conveyed into paths of motor control, of both the optic apparatus and the general musculature.

Thus visual impulses, in one case, periodically caused muscle tremors and convulsions. Covering the eyes gave relief . . . . Another patient persistently saw needles and pins wherever she looked, and she had been diagnosed a paranoiac. Difficulty in accommodation results in a large proportion of cases in a haziness of all objects closer than or beyond a distance usually of some ten feet from the patient. In these cases attempts at accommodation give rise to a sensation of sickness but not particularly nausea. Temporary blindness of the whole or part of the visual field is common, so that a patient may run into things without seeing them. Or a sudden general loss of sensation with blindness and a complete loss of muscle control will cause the patient to drop to the ground, without loss of consciousness and give the impression of dying. The muscle control may be only partly lost and the movements consequently uncoordinated. During these spells pin-point pupils have been reported. Great changes in visual impulses, such as take place on turning out the light or waking up in the morning, may cause a dizziness with topsyturviness of after-images or true images. In the former case, turning on the light and fixing the eyes on an object relieves. In the latter case, closing the eyes relieves. These occurrences come in spells of only short duration or last several weeks at a stretch and over a period of a few or as many as twenty years prior to the development of the growth.

Occasionally a peripheral neuritis is present. It may be mild or severe and may be associated with areas of anesthesia and paralysis of one or more groups of muscles. But the percentage of such cases is small.

Since these symptoms, which occur in nearly ninety percent of my cases, let up entirely or in large part with development of the growth, the detoxicating function of the latter is evident; and resembles the detoxicating function of the parathyroids.

The relationship between the germ producing the poison and the development of the growth is clearly set forth in paper read before the convention of the American Association for Medico-Physical Research (Sept.1925) is here reprinted in its entirety for besides some rather technical matter, it gives the facts so clearly that it can be read by all with profit.

CANCER AND THE EVOLUTION OF THE IMMUNITY PROCESS

A chemical compound is not simply a mass of material but must be recognized as so much concentrated energy, and its chemical behavior is a function of the energy play: depending upon it. Light, for instance, can mediate any type of reaction within and between chemical substances, and certain chemical bodies can emit light vibrations. But all chemical bodies emit characteristic vibrations depending upon the dynamic state of, or disposition of their electrons or valences. They may thus under proper conditions behave as photochemic ferments. Nitrogen containing cyclic compounds, offer the most important class of such substances with which we have to deal in physiology and pathology. Only a few of these bodies have been chemically identified and the study of their dynamics has been quite neglected.

Under the influence of vibrations received from other chemical bodies and by virtue of the entropy in the molecule three important classes of photochemic

reactions can be induced in the molecule varying from a change in the state of isorrhopesis to actual ionization should the valences be in a sufficiently critical condition to permit.

Isorrhopesis can take place between adjacent molecules, (heterorrhopesis). The molecules thus flock forming larger masses of molecules, with increase in entropy. Such a system is not ionized, but is a nonconductor, a colloid, and acts as a photochemic ferment; because the vibration spheres of the heterorrhopesis constituents are wide and concentrated, and other molecules can circulate in their spheres, under which influence, adsorbed electrons are given a variety of impulses some of which are suited to accelerate the chemical reaction possible. Thus the rate and extent of the reaction are increased. Here a molecular system by virtue of its electronic impulses can induce and propagate a chemical reaction in other molecules without itself taking part in the reaction. It thus serves as a photochemic ferment.

Likewise molecules representing different phases of isorrhopesis in a substance can influence each other by virtue of their abilities to vibrate sympathetically, so that a more energetic phase of the substance can induce the less energetic member to assume its valency disposition. In this way they behave as photochemic ferments.

The reactions possible for any chemical substance are determined by the characteristics of the medium, the influence of other chemical bodies. Thus the conversion of the cyanamides to urea in the anaerobic medium of the colon does not take place, but the cyanamides in the colon take up ammonia radicals and become the guanidines, or they may polymerize with increase in entropy, becoming the melamines.

These are toxic substances of anaerobic germ origin and are continually absorbed from the colon by the blood and circulated throughout the body. So the situation requires a protective mechanism to permit a normal physiology.

In the presence of parathyroid function, these melamines and guanidines are again reverted to cyanamides and then to ureas and made harmless, and the body is thus protected. When the parathyroids are removed from the body, the guanidine toxins increase with production of tissue degenerations, convulsions and, death.

So the parathyroid glands are a physiological immunity mechanism, perfected and established in the animal body. They protect against poisoning by a product of anaerobic germ activity in the colon, as we observed in 1912. This research has been later confirmed at Glasgow and other European universities.

With these chemical and physiological fundamentals as an introduction, I wish to outline the program of the pathogenesis of cancer in a practical way.

The toxin causative to cancer, originates primarily in the colon and is the product of anaerobic germ activity. The observations of Colonel H. Hallilay, the British surgeon, who spent some twenty years as Army Surgeon among the native Indians, prove that where frequent loose bowel movements are the daily habit, neither cancer, gastric ulcer, appendicitis or gall bladder trouble is to be found. The dietary prevention of colonic stasis, as accomplished by Hay and Bulkley, also demonstrate that cancer and some other diseases have their primary origin in colon toxemia. Thus it is settled that the anaerobic germ chemistry of the colon, through stasis, can produce a general systemic poisoning productive of cancer. Occluded tonsilar crypts are a certain but less frequent source of the poison.

All living cells have in common certain structural chemical groupings necessary to life. The virus associated with cancer, prepares for itself an essential structural unit, which has a counterpart in the animal cell. This virus toxin is prepared in an anaerobic medium, while the structural counterpart of the human cell is built up and functionates in an aerobic medium. Thus, two phases of the structural unit exist in nature, and as they represent homologous molecules, they are capable of sympathetic electronic vibration. Under proper conditions, the anaerobic or germ form, can influence the aerobic or human form to pulsate in unison with it and to assume the molecular state represented in the germ form of the substance. An induction of sympathetic electronic vibrations with resulting influence on chemical structure thus take place. The toxin thus behaves as a photochemic ferment.

So the toxin of the cancer virus, when colonic stasis is present, is circulated through the blood and attacks every tissue of the body. Various symptoms arise which may precede the development of the growth for many years. These may range in severity from dizziness, temporary blind spells, headaches, neuritis, etc., to mental disturbances grave enough to be diagnosed insanity. We call these the pregrowth symptoms, since they let up in a high percentage of the cases, with the appearance of the growth. Impairment of functions of the glands of internal secretion, may also result in simple and toxic goitre, and adrenal insufficiency with pigmentation changes may follow. Moreover senility changes and tissue degenerations may precede and accompany the growth.

The growth first starts to develop where such circulatory changes take place, that favor an increase in the supply of the circulating toxin, and where a circulatory stasis follows, permitting the region to become more or less anaerobic. Injuries and scars, predispose to this anaerobic condition and here the cancer germ's toxin can carry on its inductive work to the best advantage. Moreover the germ itself can grow in an anaerobic medium to the best advantage and the region of circulatory starvation offers opportunity for its culture.

Here the, toxin behaving as a photochemic ferment, converts more and more of the cell structural unit to the germ phase of structure, and the cells thus robbed compensate the loss by preparation of more and more normal units. Each new unit prepared is converted to germ phase of structure and the development of the virus further favored. Thus we have a supply of the material favoring germ reproduction, noticed recently by Gye and Barnard, and called a specific factor. The more the cells prepare of normally constructed units, the more germ form of the substance is made from them through toxin activity and the greater the development of the germ. Finally the cells show fatigue and may die off, forming a spreading ulcer, a rodent ulcer, gastric or duodenal ulcer or an endometritis. Or the cells may prepare abbreviated forms of the normal substance and reproduce to do this. By this reproduction a growth is formed and it has a function in that the abbreviated forms are more energetic bodies than the normal form and they tend to influence the toxin to assume their state of electron disposition. The growth thus demonstrates a function in that an antitoxin is approached, and by following this plan of attack, we have been able to prepare the true antitoxin synthetically. Unfortunately, this procedure of the tissue is not followed out far enough to offer adequate protection. However by thorough cleaning out of the colon continually, and by proper increase in the circulation in the growth, or its complete removal, if that can be done at this stage of the game, a more or less satisfactory cure is to be had. I have cured such a case, and so have others by proper diet and colon lavage and removal of the circulatory stasis in the growth. That such cures are but temporary, can be inferred from the fact that no anti-body production of note has been established in the body. And surgical removal of the growth at this time tends to prevent the anti-body production entirely and is therefore the poorest of all methods of attack. The toxin is still in the blood and the anaerobic conditions in the operation wound, due to circulatory stasis, simply favor the development of a new set of cancer growths, even though the original growth were perhaps completely removed. Proper diet and colonic flushing, and increase in blood supply to the growth at this stage of its development offers a greater measure of benefit and permits the growth cells to tend to complete their program of immunity development.

After a time, the ability to form the abbreviated units becomes exhausted and the cells are supplied only with the germ type of the structure of the substance. They can incorporate these into their protoplasm and thus live an anaerobic existence. In so doing, they are devoid of physiological function, and grow or reproduce as fast as germ activity supplies them with new anaerobic units. They thus live in symbiosis with the germ, lose their histological polarity and grow and spread as parasites throughout the body, giving the usual clinical picture of cancer.

During the growth period the body is generally detoxicated by the multiplying cells taking out the units from the blood, that they incorporate into their own structure. Hence the pregrowth symptoms of intoxication generally subside during the time of cancer growth. Should the cancer growth be removed largely, the pregrowth symptoms recur until the growth of cancer tissue catches up with the toxin production. At this time also by energetic cleansing of the colon, and proper diet, the returning pregrowth symptoms can be to a large extent ameliorated, and recurrence of cancer tissue slowed up.

The preparation we use to cure the disease is a synthetic photochemic ferment of greater energy than the toxin, a very energetic sample of the normal phase of structure of the substance existing in the normal cell. It is energetic enough to induce isorrhopesis change in all of the toxin molecules, whether free or bound up in the protoplasm of the cancer, cell or in the germ. It changes by its induction power, all the germ phase of structure of the substance to the normal aerobic phase. Thereby the cancer cells are reverted to normal and the germ is killed, as it cannot exist with the substance in an aerobic phase.

The cancer cells are changed to normal, through the action of the treatment and then exist in excess of the physiological demand. They undergo calcification and digestion for removal, and the products are again used to re-nourish the depleted body. Anaemia and cachexia disappear and the pressure effects and other changes consequent to the growth disappear, as it is absorbed.

The removal of the involuting growth is accomplished by the ingrowth of angioblastic tissue which completely replaces the growth. These little vessels retract as fast as their work is done and they provide for the healing of destroyed areas. Thus recto-vagina and recto-vesicular fistulae are healed with normal tissue elements and without scar production.

In the reconstruction of the tissues destroyed by the growth, the new cells that are formed have au excess of preformed structural units of the order of the photochemic ferment, supplied by the treatment- material. These units are built up into the cells of the new tissue being formed, and by virtue of their high ,photochemic value, these units provide a protective value to the new tissue, making it capable of changing any further molecules of the toxin to the state of structure normal to the human cell. Thus the new tissue, besides carrying on its usual function, acts as a new gland of internal secretion, and words a continued protection against existence of the toxin responsible for cancer. This tissue can then functionate as an immunity organ like the parathyroid glands, and through the treatment we .reach the goal toward which the cancer effort is struggling in its evolution-a perpetual immunity against a toxic product of a virus inhabiting the anaerobic recesses of the body, as occluded tonsilar crypts and an inert colon."

The effect of this is not only the production of the cancer growth: Other tissues during the period of poisoning preceding the growth response show the effects of its activity. Thus goitre, persistent headache, neuritis, dementia, paralysis, gastric ulcer, bleeding from the womb due to persistent ulceration within that organ, and several other conditions warn us in advance that cancer is on the way and that efficient measures are needed to eradicate the disease even before the growth is discoverable. These conditions result from the absorption of the cancer producing poison from the large intestine; and from the action of this poison on the various tissues of the body. Too often the germ has already localized in one or more places in the body, and in due time causes a growth to come into evidence.

THE DIGESTIVE TRACT AND THE PREVENTION OF CANCER

Constipation is a great American evil. When we, eat more food than can be properly digested and absorbed by the small intestine, the excess passes into the large intestine where it can support the growth of disease or putrefactive germs. This situation is aggravated by the American habit of fast eating and the swallowing of chunks of food that do not permit of a thorough penetration by and mixture with the digestive juices, but reach the large intestine undigested and unpurified by the action of these juices; to ferment or putrefy and thus supply material for germ growth. Ochsner, Sambon and others have contended that the cancer germ is carried into the system with our food, hence the importance of determining how the germ, gets into our food.

Putrid and fermented material retained in the colon is a constant source of poisons that; on being absorbed into the system, act fundamentally in the causation of many of our present day chromic ailments, including cancer, gastric ulcer, high blood pressure, neuritis, appendicitis and gall bladder troubles. Peoples, like the Hindu, who living on their native diet and have three or four loose bowel movements a day know not of the above mentioned troubles. But as soon as the Hindu adopts the English diet and habits of eating, they areas subject to these ailments as are the English and Americans. Very often putrid material remains plastered against the walls of the colon for years, and the individual is not aware

of his constipation, Sticky stools spell incomplete digestion and indicate the likelihood of disease.

OVEREATING AND FASTING

The quantity of food must not be greater than what is required for nutrition. Feeding as a means of entertainment a perversion for which one must surely suffer. If, however, the food is taken in excess of ones needs, it should be of such quality as will produce rapid movement through the bowel, whereby it can sweep out the large intestine, and thus change its contents so frequently that no chance for accumulation of stale matter can take place. The coarse whole cereals, raw vegetables and fruits offer this advantage. The eating of meats and refined emasculated foods in excessive amounts cannot but cause trouble. Putrid odors with the bowel movements also predicate abnormal conditions in the colon and are warning signs that now is the time to use preventive measures.

Another source of digestive disturbance is improper mastication of foods. Starch foods require an alkaline medium for digestion. This is provided by the saliva and therefore all cereal and other starch foods should be carefully masticated and thoroughly mixed with saliva before swallowing. The habit of eating cooked cereals with milk leads to the bolting of these foods without proper mixture with the saliva. Another vicious habit is the combination of acids with starch foods, for example, potato salad. Green salads eaten at the same meal with starch foods should not have an acid dressing.

The flow of the digestive juices of the stomach is stimulated by the presence of protein foods. These are digested in the stomach. The more carefully they are masticated the more completely and promptly will they be digested. Fatty foods are digested in the small intestine.

Think these facts over, and bear them in mind in the preparation of menus and in the method of combined and eating foods found upon the table. A hint to the wise is sufficient.

Nearly all of us eat too much. One result of overeating is that every body cell has pressed upon it more nutritional units than it can take care of properly. These materials are not effectively handled, they are only incompletely metabolized and remain absorbed in the cell where they hamper its normal chemistry, cut down its efficiency and serve as material for the nutrition of germs and the production of germ poisons. What worse condition could be imposed on the tissues of the body? And how on earth can one expect to be healthy or energetic under such circumstances? It is calculated that we eat from twice to three times as much as we need. The excess spells disease. Therefore, a period of starvation with the drinking of plenty of pure water until the body weight is brought to normal will not decrease the strength or energy, but will make you feel better, sleep better, be free of dreams, think keener, will make you better able to compete with your adversary; in short will make you "healthy, wealthy and wise." Try it. Thereafter eat in accordance with your needs one or two meals a day, chew very thoroughly what you have to, eat, and you need not worry about disease, for you will have the health God intended for you. God does not punish you with disease, your ignorance and gluttony do that.

OXYGEN NECESSARY

The relation between the oxygen intake and the food intake is also very important. The fatter we are, the less our breathing space and the less the oxygen we take in, even with our deepest breathing. The more air we breathe, the more the oxygen supplied to the body cells and the less the accumulation of unoxidized poisons in these cells to favor disease. When one carries a normal body weight his breathing space is at its best and the less is disease liable to take hold. It is an interesting observation that a high percentage of cancer patients have rapidly increased in their body weight for a year or so before the disease gave evidence that it was active in them. Under-oxidation is a pre-cancer condition. Please, take warning.

EXERCISE IMPORTANT

Exercise is the means of getting more oxygen into the system, of using up the

material we eat and also of keeping the normal cell mechanisms going. Be sure to take daily exercise in the open air while fasting. Exercise is getting less and less convenient in our modern daily programs. Cancer at the same time is on the increase in like proportion. Our forefathers used their muscles, ate natural foods, and were not in the nervous hurry that interfered with mastication. They ate the foods that swept the intestinal canal. They worked and walked and thus gave their abdominal muscles occasion to massage the intestines, in fact they lived more like normal animals and they developed cancer less frequently, and then only at the retiring age when they ceased to live normal active lives. So let us take the simple warning, particularly since we have the scientific reasons and explanations confirming the fact, that proper eating, breathing and exercise will keep us free from cancer, in spite of any injury the body may receive. The cancer germs can't get a foothold in a healthy cell.

DIET AND FOOD ESSENTIALS

The idea of the following prescribed diet is to nourish the patient sufficiently, to maintain a normal blood alkalinity, and to feed such materials only as are conductive to best digestive activities and good bowel action and to avoid all irritants, stimulants and substances toxic, that may, hamper the progress of normal intracellular reactions.

In order to maintain life and health, foods must contain vitamins, mineral salts, protein, fat, carbohydrates and water.

If our food is lacking in vitamins, deficiency diseases result, such as neuritis, scurvy, rickets, paralysis. Some of these vitamins are destroyed by heat. Therefore, some of the food must be eaten raw. The foods rich in vitamins are the fresh fruits, the green vegetables and the dairy products.

Our bodies contain 16 different mineral salts. If our food does not supply these, disease results. The source of mineral salts is fruits, green vegetables, the skins of fruits and tubers and the germ and hulls of the cereals. Therefore, we must eat whole cereals, eat the skins of fruit and vegetables, and save and drink the pot liquor in which the green vegetables are cooked. Don't throw any of it down the sink.

The protein requirement of adults is very small, therefore, but little if any meat should be used. A pint of milk a day will give all the protein that is needed. So do not pile up proteins by eating meat, eggs, baked or stewed dried beans, and drinking milk at the same meal. Too much protein tends to constipation, acidosis and other forms of toxemia.

The carbohydrates (starches and sugars) and fats are energy and heat foods. Starch and sugars should be used as they occur in nature-whole cereals and tubers, sweet dried fruits, unrefined cane and maple sugar and honey. Fruits rich in fat are nuts, alligator pears, peanuts and olives. These are wholesome. The best animal fat is cream and butter.

DIET SUGGESTIONS

The following general diet suggestions are furnished patients who apply at the Koch Cancer Clinic for con-sultation and treatment.

(a) The diet should be bland-No condiments, spices, strong acids, alcohol, wines or citrus acid fruits, such-as oranges, lemons, grape fruit, tomatoes, food containing lactic acid (sour milk or butter milk).

(b) The diet should below in protein, very little or no meat, fish, eggs, dried beans or dried peas.

(c) No refined sugar, processed or emasculated cereals or foods made therefrom such as white flour, processed corn meal or breakfast foods should be used.

(d) Care should be exercised not to serve proteins (foods that require acid digestion) at the same meal with starches (foods that require an alkaline medium for diges-tion) or to serve at the same meal starchy foods and fruit acids.

(e) The bowels should have two daily evacuations, use an enema if there are not

natural movements. May use mineral oil as a laxative, but no cathartics.

(f) The diet should consist of fresh and cooked fruits: apples, pears, sweet prunes, pineapples, mild acid berries in season and melons: vegetables (green) such as lettuce, celery, cucumbers, green peas, string beans, green corn, kale (avoid spinach and cooked cabbage); tubers such as potatoes, carrots, turnips; sweet milk and cream; porridge and bread from whole cereals. For sweets use dates, figs, honey, maple syrup and brown sugar.

For persons suffering from the toxic symptoms that suggest the presence of susceptibility to cancer infection, the following detoxication and reconstruction diet is recommended.

FIRST WEEK

The diet should consist entirely of fruit juices, all the patient cares for (from three pints to three quarts daily). Express the juice from ripe fresh apples or pears. (Use a small cider press, or cut the fruit into pieces, run through a meat grinder and express the juice from this pulp mass.) Apples or pears may be stewed (peelings left on) and the juice pressed out. Use no sugar in these juices. The juice of two or three sweet, not sour oranges, may be used each day. The juice from simmered small sweet, not sour prunes, may be used. Watermelon may be chewed and the pulp rejected. Pineapple may be stewed and the juice expressed. These juices may be served singly or may be mixed, but on no condition is any sugar to be added. The usual day's ration will be about one quart of fruit juice and one quart of water. An enema is to be taken twice daily, if bowels do not move daily twice normally.

SECOND WEEK

Drink one to two glasses a day of the fruit juices and one to two pints of vegetable liquor. Vegetable liquors are made by cooking with a fair amount of water, singularly or in combination, one or more of the following green vegetables: celery, peas, string beans, green corn, young carrots, small sweet white turnips. Strain off the liquor and flavor with a little butter. A few potato peelings may be cooked with these vegetables. A good plan is to chop all fine, or run through a meat grinder before cooking. A mild onion may be cooked with the vegetables if desired.

The same requirement for daily bowel elimination as for the first week. Under no condition should cathartics be used.

THIRD WEEK

Whole fruit and vegetables, either raw or cooked may be eaten. The more raw food in proportion to cooked food used, the better. Salads, vegetables and fruit puddings prepared as follows may be eaten:

For salads, use lettuce, celery, chopped or grated carrots or turnips (or both) and chopped apples, pears or pineapple. Use no dressings. A large plate of this may be eaten daily.

The vegetable soup is made in the same manner as the vegetable liquor for the second week, with the exception that less water is used in cooking and the vegetables are now eaten and not strained out. A pint or more may be eaten daily.

To make the fruit pudding, chop 1/4 pound of figs or dates and 1/4 pound of raisins fine and simmer over fire for a few minutes; add to this three or four fair sized unpeeled apples cut up fine and a little more water. Cook until the apples fall to pieces. Add no sugar or flavoring material. This gives a delicious nutritious dish of which a whole meal can be made. If desired, a few pecans ground in the meat grinder, or an ounce of peanut butter mixed with a little water to a cream maybe added to this pudding just before removing it from the fire.

FOURTH WEEK

Milk, cream, cereals (whole) and chicken may be added to the diet. The cereals should be eaten raw or cooked as porridge or bread. Vegetable tubers such as turnips, beets, parsnips and potatoes (baked or cooked with the jackets on) may be eaten. Patients must remember that in thus enlarging the variety of foods that

can be eaten, the importance of eating raw fruits and vegetables daily must not be overlooked. Remember that acid fruits, or salads with an acid fruit dressing are not to be eaten at the same meal with foods that are largely composed of starch.

FIFTH WEEK AND THEREAFTER

From now on almost any kind of wholesome food may be eaten provided the general principles are observed. Never use fried foods. Never eat burned foods. Always avoid acid forming foods. Always eat generously of raw foods. Do not tolerate in your diet bad mixtures. Be sure to select foods that will stimulate alkaline metabolism.

All acids, spices, condiments, alcohol, cathartics; drugs of any kind, depressants, stimulants, tonics, are absolutely prohibited. Use no suppositories, no alcohol or Glycerine, either externally nor internally. Coffee and cocoa should be eliminated. Do not drink water containing a large amount of iron. For pain use hot applications.

By this time a daily habit of two to three bowel movements a day should be established. If it has not been, keep up the enema or use the daily washout by mouth. This consists in drinking rapidly in succession six or more glasses of very warm water. Water taken rapidly moves quickly through the stomach and small intestines to the colon, and thus stimulates a normal evacuation.

It is a matter of common opinion due largely to false teaching in our medical schools that a person would weaken and die under a month's fasting. As a matter of fact this is not the case. On the contrary fasting for a reasonable period of time from all food, accompanied with the drinking of water and regular daily exercise, preferably in the open sunshine, increases both the endurance and the resistance.

A fast of seven to thirty days is not uncommonly prescribed by progressive physicians. Fasting is not accompanied with any sense of discomfort after about the third day. A reasonable fast for persons who are overweight may be suggested from a study of the following table of average weight. Persons who are much under weight because of toxemia lose but little weight under full fast, and often gain in weight under the detoxication diet outlined above.

TABLE OF AVERAGE WEIGHT FOR VARYING HEIGHTS AND AGES*

MALES					
Age	**15-24**	**25-34**	**35-44**	**45-54**	**55-64**
Height	**Weight**	**Weight**	**Weight**	**Weight**	**Weight**
5-0	120	126	132	134	133
5-2	124	130	134	138	137
5-4	131	137	142	145	145
5-6	138	144	149	152	153
5-8	146	153	159	162	163
5-10	154	162	169	172	173
6-0	165	173	179	182	184
6-2	176	186	193	195	193
FEMALES					
5-0	114	118	123	129	130
5-2	116	122	129	137	136
5-4	124	128	136	143	144
5-6	130	137	144	152	152
5-8	138	145	153	160	161

*This table is an abridged table made from the table of averages, complied by Dr. Frederick L. Hoffman, of the Prudential Life Insurance Company. His figures were based on the measurements of over 74,000 male and nearly 69,000 female applicants for life insurance. Therefore, they are presumably the normal averages for healthy persons.

SUMMARY

The prevalence of cancer in its early stages, prior to the appearance of the growth, is so great that we must again refer to statistics and repeat some of the symptoms which show when you have unhealthy cells liable to cancer infection if the infection has not already taken place. It is in these early stages that the disease can be prevented and completely eradicated by following the advice given in the preceding pages.

The estimates of prominent statisticians place the annual death rate from cancer in the United States at over 125,000 with an annual increase of two percent. On this death rate, it is estimated there are now in the United States, alone, at least 1,000,000 cancer cases demanding care and treatment, and several times that many whose condition of health makes them potential cancer victims. Baker estimates that 10 percent of the entire population of England are suffering from cancer. This means that there is an ever increasing number of persons whose pre-cancer condition goes on unrecognized or is not diagnosed until a late stage of cancer is manifest by the appearance of the growth.

Among the pregrowth symptoms which may be present for years before a growth appears are attacks of headaches, or "bilious spells;" attacks of dizziness with the sensation that everything is going round and round; transient blind spells; blind spots before the eyes which partially obscure the visual field and other visual disturbances, such as flashes of light or inability to accommodate vision to approaching objects. There may be moments of temporary loss of equilibrium and severe headache with or without ringing in the ears. Neuritis is a frequent pregrowth symptom. The arm and shoulder group of muscles may be affected or the sciatic nerve with resulting impairment in the use of the leg. Other nerves may be the location of the pain which may finally yield to a motor or sensory, paralysis of the affected part. Mental derangement is, in a small percentage of the cases, the most prominent pregrowth symptom. Epilepsy has been noted to disappear when the growth developed.

Usually the detoxication procedure outlined above is sufficient to stop the trouble, and the correct health measures recommended should thereafter, be strictly followed.

Should these measures in any particular case prove insufficient, we can be reasonably certain that the germ has gained entrance to the tissues of the body and is there elaborating its poison. In that case, a routine fast with plenty of pure water to drink, and two colon irrigations daily must be followed until a natural appetite for simple food is attained. By so doing the body will be enabled to dispose of the excess of absorbed mal-metabolized food material that favors the development of the germ in the tissues.

PREVENTIVE MEASURES MUST BE USED EARLY

When the condition is already deep seated, these preventive measures will not be sufficient. But in such cases there are usually present other signs of the activity of the germ, such as enlargement of the thyroid with symptoms of toxic goitre, irregular pigmentation or loss of pigmentation, disturbances in the cardiovascular functions, unnatural bleeding, impaired digestive function, localized pain and tenderness, asymmetry of some part of the body, jaundice or anemia.

If a growth is present, whether small or large, as the disease develops it may break down in its center and ulcerate away, so that as it spreads it increases in size at edge, while the center becomes depressed. Any part of the body may be affected and the growth may invade the neighboring tissues and new growths may develop in distant parts of the body. It invades without respect any tissue in its path, eats through blood vessels, lymph channels and nerves. The involvement of nerves and the pressure of the ever increasing growth cause pain. Passages may be obstructed and bleeding and odorous discharges ooze or flow from the eroded surfaces. Therefore, the presence of any of these symptoms should be looked upon with suspicion.

Cancer is a progressive insidious disease. Considering the local growth only, there might be some difficulty in distinguishing cancer from the benign growth; only, however, while cancer is in its early stages of development, before it becomes attached to the surrounding structures, or before new lumps have developed. Yet there is always the possibility of the so-called benign growths becoming cancerous

or malignant, and thus they are potentially all malignant and should be considered with suspicion.

When the growth stage is reached, there is little hope of recovering health by the hygienic measures alone. Nor is there any more than the most remote hope of obtaining a cure through the removal of the growth. This fact is now admitted by the leading medical authorities of both Europe and America. In the British Medical Journal of Oct. 1923, we read: "Can there be any doubt that in many respects the knife as a cure for cancer is a ghastly failure," and the, president of the British Medical Association in his book on Cancer and the Public says:

Nobody will pretend that surgery is the ideal method of treating cancer and surgeons all the world over would welcome some better and wholly different means of dealing with it.

Sir James Paget acknowledges that surgery in the treatment of cancer cannot even be given the, credit of prolonging life. He says:

I am not aware of a single case of recovery, and as to the influence of an operation in prolonging life; I believe that the removal of the local lesion makes no material difference in the average duration of life.

The experience of America's best known surgeon, Dr. Mayo, is that, even under the most favorable circumstances for operation, that is the early case, where the lump is small as a bean or hickory nut and accessible as in the breast, the removal of the whole breast does not prevent a recurrence. Dr. Kress quotes Dr. Mayo thus:

After amputation of a cancerous breast under the most favorable circumstances, I believe that in 99 cases out of 100, the disease returns.

Dr. MacFarlan, Professor of Surgery at the University of Glasgow, in giving his own experience in operating on such cases, writes:

The operation never arrests, but uniformly accelerates the progress of the disease. Thus it is seen that the removal or non-removal of the local manifestation has no influence on the cure of the disease.

In these statements we have emphasized not only the failure of surgery as a means of help, but the harm that may be done since the operation often stimulates the disease and cuts down the resistance of the natural defenses.

Nor is there any appreciable hope for benefit from the use of radium or X-ray. X-ray was once, flaunted before the world as a cure for cancer. It failed from the start. The earlier machines were judged too weak. Then larger and more powerful machines were invented and employed. At the present time the machines are so very powerful that it has proven expedient to make the number of treatments less and less frequent, less and less in tense, and shorter and shorter, that the patient may have a better chance to escape the terrible effects that sooner or later prove fatal. At first the milder machines and treatments proved ineffectual, and now the powerful machines and the drastic treatments have likewise proven ineffectual, but the injury done by such treatments are not only at times worse than the disease itself, but have sometimes proven directly fatal.

At the last convention of the American Medical Association, the discussion on the status of radium the most recent treatment of cancer by a destructive method was summed up by Dr. Francis Carter Wood, Vice President of the American Association for the Control of Cancer, in the following words:

Radium will not cure cancer. It only destroys cancerous tissue within a certain radius, but does not drive the disease from the blood.

And regarding the serious danger connected with this substance we have the report of Dr. F. S. Hoffman, on the death of five girls who painted numerals on radiolight watch dials. These girls had wet the brushes employed in their work with their lips, carrying enough of the radium containing material to their lips to cause "radium necrosis," "a peculiar and happily short-lived disease, that rotted tissues away, until death ensued." When one considers the very infinitesimal amount of radium in this cheap radiolight material being able to cause death by

progress of an uncheck able rotting away, or burning away of the tissues, is there any surprise that the large doses of radium used therapeutically may kill quickly or cause much suffering?

Even the Journal of the American Medical Association (Jan. 9, 1926) now admits that radium is a dangerous agent. It says:

The demonstrable cell-destructive potency of radioactive substances and the unsuspected latent effects that they may initiate should serve as a vigorous warning to all who promote radioactivity as a therapeutic measure.

Surely these destructive agencies are as bad or even worse than the disease. Nor are we disappointed that such local measures as X-ray, radium and surgery have proven ineffectual in coping with a constitutional disease. We have no more right to expect a prevention of the extension of the cancer process by such measures than we have to expect them to prevent the infection from taking hold of or entering the body at all.

Fortunately there are means of preventing the cancer germ from continuing to exist in the body even after it has established itself in the tissues of the body, and there are means of curing cancer even after the growth has become well established and widespread. Not only can cancer be prevented by constitutional measures, but it, like other infectious diseases, can be cured by chemotherapy. However, it is not in the province of this treatise to discuss the cure of cancer. The theme assigned me was "The Prevention of Cancer." I have outlined how the conditions essential to cancer infection and the nutrition of the cancer germ-diseased cells and a vitiated blood--can be prevented by a regime of diet, exercise, and. elimination, the prerequisites of normal metabolism, healthy cells and. cancer immunity.

The true nature of cancer has been explained. The method of prevention has been indicated. The means are easy, convenient, and inexpensive, and the reward in vigorous health and long life is certainly worthwhile:

There is no longer a reasonable doubt that cancer will be a disease of the past as soon as the public attains to a realization of the facts herein presented.

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Scientific Therapy and Practical Research, a monthly journal.
Cancer, its Function and Cure. Wm. F. Koch, Ph. D., M. D. (Case Histories)
The Prevention of Cancer, Wm. F. Koch, M. D., with Introduction by Orlando, Ducker, M. D.
Cancer and the Evolution of the Immunity Process, W F. Koch, M. D., with Discussion by C. Everett Field, M. D.
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